REMARKS

Claims 1-3 and 5-7 are pending herein.

By this Amendment, claim 1 has been amended to more fully distinguish the invention of the claims over the teachings of the prior art reference cited against the claims. Claim 4 has been canceled.

The attached Appendix includes a marked-up copy of the rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

No new matter is added by this Amendment. Support for the amendment to claim 1 is found in the original specification and the original claims. In particular, support for the language added to claim 1 may be found in original claim 4.

I. Specification

The specification was objected to because there is no page number at the bottom of the first page indicating it is page 1. Further, the disclosure of the specification was objected to because several test standards identified in the specification were allegedly not obtainable. To this end, Applicant submits a new page 1 showing the page number at the bottom of the page and Applicant submits English-language copies of the test standards as requested by the Patent Office.

For the foregoing reasons, Applicant submits that the requirements by the Patent Office have been met and that the objections to the specification have been overcome. Reconsideration and withdrawal of these objections are thus respectfully requested.

II. Rejection Under 35 U.S.C. §102(e)

Claims 1-7 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 6,103,371 (Prickett). The rejection is respectfully traversed.

The Patent Office alleged that Prickett anticipates a cut resistant article comprising polyamide microfilaments, specifically comprising a para-aramid, more specifically a poly p-

phenylene terephthalamide polymer having a dtex of 1.3 or less and a filament length between 38 and 100 millimeters.

The cut resistant article as defined in amended claim 1 includes aromatic polyamide microfilaments wherein the titer of the microfilaments is equal to or smaller than 1.3 dtex (1.3×10^{-4} g/m).

Prickett teaches para-aramid staple fibers having a linear density of 3 to 6 dtex. (See col. 3, lines 44-50). Prickett teaches away from using staple fibers having a linear density smaller than 3 dtex. According to col. 3, lines 54-55, fibers of less than about 3 dtex may not yield the improved cut resistance of the invention taught by Prickett. Further, Prickett teaches that fabrics made from para-aramid fibers having a linear density of 3 to 6 dtex will deliver improved cut resistance due to the increased fiber linear density and maintain comfort due to the decreased yarn twist. (See col. 3, lines 47-50). Accordingly, Prickett teaches that using staple fibers having a linear density smaller than 3 dtex does not result in the desired cut resistance.

Although Prickett indicates that staple fibers having a linear density of about 2.5 dtex or less have been used in the past, Prickett does not disclose what is meant in referring to fibers having a linear density less than 2.5 dtex. However, one of ordinary skill in the art would understand that Prickett here is referring to standard staple fibers having a dtex of, for example, 1.7 or more.

In the examples disclosed by Prickett, linear densities of 1.67, 2.5 and 6.67 dtex are disclosed which do not fall in the claimed range of 3 to 6 dtex. According to Prickett's summary of the results of the examples, the cut resistance improves dramatically with increase in staple linear density and the increase is most dramatic at staple linear densities of greater than 2.5 dtex. (See col. 5, lines 38-41).

According to Applicants disclosure, higher tensile strength microfilament yarn (0.93 dtex) is responsible for improved cut resistance of fabrics made from microfilaments. The strength is considerably improved for microfilament fibers.

A standard yarn has a filament titer of 1.7 dtex as illustrated in the specification. See, e.g., comparative examples. According to DIN EN 388, as disclosed in the specification, the performance of a microfilament yarn (0.93 dtex) is better than the standard yarn (1.7 dtex). "Moreover, the knitted fabrics based on microfilaments are much softer and have a finer 'hand' than comparable fabrics based on standard fibers with a count of 1.7 dtex." (see page 4, lines 1-3) (emphasis added).

The comparative examples according to the present invention use a standard filament titer of 1.7 dtex and use a linear density that is smaller than the ones disclosed by Prickett as prior art, that is, smaller than the standard 1.67 dtex fiber shown as a comparative example in Prickett. More specifically, the examples disclosed in the present specification use a linear density as low as 0.93 dtex. In the table on page 3 of the present application, the cut resistance was evaluated with comparative standard fibers having a titer of 1.7 dtex and of microfilaments of the invention having a titer of 0.93 dtex. This test shows that the cut resistance (represented by the smallest index) of the microfilament yarn is better than the cut resistance of a standard yarn.

Prickett teaches away from a cut resistant article using aramid microfilaments according to amended claim 1 of the present application. Namely, Prickett teaches the use of staple fibers having individual linear densities that are higher than what has been used in the past, whereas the present invention uses microfilaments having lower linear densities than what has been used in the past.

For the foregoing reasons, Applicant respectfully submits that Prickett fails to anticipate the subject matter of amended claim 1. Reconsideration and withdrawal of this rejection are respectfully requested.

III. Information Disclosure Statement

Applicant notes that on PTO Form 1449 previously submitted to the Patent Office, the Examiner has initialed all the cited documents but has added the words "not received" next to three of the cited documents. Applicant further notes that four of the initialed cited documents were crossed out including the documents that were indicated as not having been received. Applicant is not certain if the Examiner is indicating the citations have been considered. Accordingly, to clarify this matter; Applicant hereby submits a new PTO Form 1449 showing the four previously crossed out cited documents, and respectfully requests the Examiner to initial these documents as having been considered.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicant submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3 and 5-7 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number set forth below.

Respectfully submitted,

William P. Berridge
Registration No. 30,024

Linda M. Saltiel
Registration No. 51,122

WPB:LMS/rxg

Attachments:
Appendix
Clean Specification Page 1
English-language Copies of Test Standards
PTO-1449

Date: April 21, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

APPENDIX

Changes to Claims:

Claim 4 is canceled.

The following is a marked-up version of the amended claim:

1. (Amended) A cut-resistant article comprising aromatic polyamide microfilaments wherein the titer of the microfilaments is equal to or smaller than 1.3 dtex (1.3×10^{-4} g/m).

CUT-RESISTANT ARTICLES OF ARAMID MICROFILAMENTS

The invention pertains to cut-resistant articles made of aromatic polyamide microfilaments.

It is known that cut-resistant articles can be made of aromatic polyamide (polyaramid) fibers. In DE 29713824 a protective glove has been described the lining of which comprises flexible aramid fiber. In WO 9721334 penetration-resistant compositions have been disclosed in which yarns of aramid fibers are bonded to a polymeric continuum. This material is primarily aimed at body armor for protection against ballistic projectiles, but it is also described that the compositions can be used against sharp objects, such as knives, in gloves, sleeves, shoes, and the like. Gloves made from poly(para-phenylene terephthalate) yarn (p-aramid yarn) are commercially available, for instance, under the name Twaron® Safety Gloves.

Although these articles, in particular gloves, are suitable in many cases, there is still a need for improvement. Such improvement includes a better resistance against stubbing and cutting by sharp objects, such as nails, knives, and the like, but also increase of wear comfort, freedom of movement, and enhanced suppleness are long sought improvements.

It has now been found that cut-resistant articles with improved properties in comparison to known articles can be obtained by using microfilaments of aromatic polyamide (polyaramid).

Aromatic polyamide microfilaments as such are known, for instance from EP 241,681, wherein articles made of polyaramid microfilaments have been disclosed for use as ballistic protection structures. However, it is